



## ***Space Rocks! A Giant Meteorite Board Game***

### **DESCRIPTION**

This is a board game. Students assume the roles of meteorites and play a giant board game to learn about meteors, meteoroids, and meteorites. They compete to get to Antarctica, where they have the chance to be found and studied by scientists!

### **OBJECTIVES**

Students will

- Investigate the difference between a meteoroid, meteor, meteorite, asteroid, and comet
- Compare and contrast the characteristics of meteorites and Earth rocks
- Explore what happens to a meteoroid as it moves from outer space to the Earth's surface.

### **NASA SUMMER OF INNOVATION UNIT**

*Earth and Space Science—Year of the Solar System*

### **GRADE LEVELS**

4 – 6

### **CONNECTION TO CURRICULUM**

*Science*

### **TEACHER PREPARATION TIME**

1 Hour

### **LESSON TIME NEEDED**

1 hour Complexity: Easy

### **NATIONAL STANDARDS**

#### **National Science Education Standards (NSTA)**

*Earth and Space Science*

- *Properties of Earth materials*
- *Objects in the sky*
- *Changes in the Earth and sky*

*Science as Inquiry*

- *An appreciation of "how we know" what we know of science*
- *Understanding of scientific concepts*

### **MANAGEMENT**

- Make enlarged copies of the game board by using the largest paper possible in your copy machine (11 by 14 inch works well).
- Parents, camp counselors, or older children can assist and act as game leaders.

## CONTENT RESEARCH

- A meteor is the flash of light that we see in the night sky when a small chunk of interplanetary debris burns up as it passes through the atmosphere. "Meteor" refers to the flash of light caused by the debris, not the debris itself.
- The debris is called a meteoroid. A meteoroid is a piece of interplanetary matter that is smaller than a kilometer and frequently only millimeters in size. Most meteoroids that enter the Earth's atmosphere are so small that they vaporize completely and never reach the planet's surface.
- If any part of a meteoroid survives the fall through the atmosphere and lands on Earth, it is called a meteorite. Although the vast majority of meteorites are very small, their size can range from about a fraction of a gram (the size of a pebble) to 100 kilograms (220 pounds) or more (the size of a huge life-destroying boulder).
- Asteroids are generally larger chunks of rock that come from the asteroid belt located between the orbits of Mars and Jupiter.
- Comets are asteroid-like objects covered with ice, methane, ammonia, and other compounds that develop a fuzzy, cloud-like shell called a coma and sometimes a visible tail whenever they orbit close to the Sun.

### MATERIALS

- Copy of the [Space Rocks Game Board](#)
- Colored markers
- Several large pieces of poster board
- Wide cellophane tape
- One die per child
- Game rules and answers for parents
- 1 copy of the answer sheet per team
- 1 token for each player

## LESSON ACTIVITIES

- Space Rocks! A Meteorite Game:  
[http://www.lpi.usra.edu/education/space\\_days/activities/spaceRocks/boardGame.pdf](http://www.lpi.usra.edu/education/space_days/activities/spaceRocks/boardGame.pdf)

## ADDITIONAL DISCUSSION QUESTIONS

- **Where can I find a meteorite?** *Meteorites fall all over the planet, but they are best preserved and most easily found in hot (like Arizona) or cold (like Antarctica) deserts. The dry climate of a desert slows rusting of the metal within many meteorites and the lack of vegetation in deserts makes meteorites easier to find.*
- **When can I see meteor showers?** *There are several major meteor showers to enjoy every year at various times, with some more active than others.*  
<http://www.jpl.nasa.gov/news/news.cfm?release=2010-119>

## ASSESSMENT ACTIVITIES

- Query Squares are questions for the children to answer throughout the game. In order to ADVANCE throughout the game, the query square questions must be answered correctly.

## ENRICHMENT

- **Explore the Solar System Game:** Web-based game dealing with various parts of our solar system, including comets and asteroids  
<http://spaceplace.nasa.gov/solar-system-explorer/en/>
- **Find The Comet Words:** A Web-based comet word find can be printed for three different levels of difficulty  
[http://spaceplace.nasa.gov/en/kids/cnsr\\_wordfind.shtml#](http://spaceplace.nasa.gov/en/kids/cnsr_wordfind.shtml#)
- **Asteroid Potato:** Students can make edible asteroids  
[http://spaceplace.nasa.gov/en/kids/ds1\\_ast.shtml](http://spaceplace.nasa.gov/en/kids/ds1_ast.shtml)